AS–1468

B.Sc. Part—III (Semester—V) Examination

BIOTECHNOLOGY (R/V)

(Animal Cell Biotechnology)

Time : Three Hours] [Maximum Marks : 80

Note :— (i) **All** questions are compulsory.

(ii) Illustrate your answers with suitable diagrams.

1. (A) Fill in the blanks :

(i) The _____ in the media helps to maintain osmolarity.

(ii) The suspension culture is used to propagate the cells which are anchorage _____ .

(iii) The acidic conditions turn phenol red into _____ color.

(iv) The dye exclusion assay is used to check the _____ of the cells. 2

(B) Choose the correct alternative :

(i) Which of the following instruments is used for sterilization ?

(a) Deep freezer (b) Hot air oven

(c) CO_2 incubator (d) Inverted microscope

(ii) A sheep "Dolly" was cloned by :

(a) Ross Harrison (b) Alex Carrel

(c) Charles Lindbergh (d) Ian Wilmut

(iii) Interferon are the compounds active against :

(a) Bacteria (b) Fungi

(c) Viruses (d) Plants

(iv) MEM-stands for :

(a) Minimum Extinction Medium (b) Minimal Essential Medium

(c) Maximum Essential Medium (d) Make Essential Medium 2

(C) Answer in **one** sentence each :

(i) Suspension culture

(ii) Tight junction

(iii) Cryopreservation

(iv) Established cell line. 4

2. (a) Explain blood tissue. 4

(b) Describe extracellular matrix. 4

(c) Explain desmosomes and gap junctions. 4

OR

(p) Explain organization of cells in muscle. 4

(q) What are proteoglycans ? Explain their role in extracellular matrix. 4

(r) What are junctions ? Describe Adherens junctions. 4

3. (a) Explain the principle of flow cytometer. 4

(b) Describe role of deionizers and water purification systems in animal tissue culture. 4

(c) Explain biosafety and biohazards. 4

OR

(p) Explain role of refrigerator and deep freezers in animal tissue culture. 4

(q) Describe good laboratory practices. 4

(r) Define microscope. Explain the role of inverted microscope in animal tissue culture. 4

4. Describe in detail chemical, physical and metabolic functions of different constituents of culture medium. 12

OR

What do you mean by simple growth medium ? Explain buffering, osmolarity and role of serum in growth medium. 12

5. Define disaggregation. Describe enzymatic, mechanical and physical disaggregation in detail. 12

OR

What is cell line ? List commonly used cell lines and describe characterization of cell line in detail. 12

6. (a) Explain HAT selection. 4

(b) Transfection of animal cells. 4

(c) Describe any one application of animal cell culture in detail. 4

OR

(p) Describe production of monoclonal antibodies. 4

(q) Explain somatic cell fusion. 4

(r) Production of viral vaccines. 4

7. (a) Describe culture of amniocentesis. 4

(b) Explain suspension culture. 4

(c) Micro-carriers. 4

OR

(p) Describe continuous culture. 4

(q) Establishment of synchronous culture. 4

(r) Explain monolayer culture. 4